THE RELATIONSHIPS AMONG TEACHERS' PERCEPTIONS OF PACED-MONITORED LEARNING, TEACHER JOB SATISFACTION, SELECTIVE DEMOGRAPHIC VARIABLES, AND STUDENT ACHIEVEMENT

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ABSTRACT

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The purpose of this study was to investigate the relationships among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables and student achievement. The independent variables were paced-monitored learning, job satisfaction and selective demographic variables--sex, age, teaching experience and educational level. The dependent variable was student achievement.

An ex post facto, descriptive study was conducted in nineteen of twenty-seven elementary schools in a large metropolitan school district. Twenty percent (20%) of the teachers of each of the nineteen schools (N = 100) were randomly selected by the researcher for participation. In all, 80% of the teachers agreed to participate; therefore, a total of 80 teachers and their students (N = 1,920) were utilized.

Four instruments were used for data collection: the Minnesota Satisfaction Questionnaire, a personal data sheet, a paced-monitored learning instrument and the Iowa Test of Basic Skills. The Pearson product moment correlation coefficient and regression analysis were the two main statistical techniques utilized to analyze the data.

Of the four hypotheses formulated, two (hypotheses 2 and 4) were rejected and two (hypotheses 1 and 3) were accepted. The level of confidence upon which acceptance or rejection of the null hypotheses was based was set at .05.

It was thus concluded from the regression analysis as well as the correlation analysis that job satisfaction is significantly related to student achievement. It was also concluded from regression analysis and correlation analysis that paced-monitored learning and selected demographic variables are not significantly related to student achievement.

It is recommended that attempts be made to identify: (1) other variables which may be better predictors of student achievement; (2) additional studies utilizing larger samples in more diverse areas be conducted to replicate this study; (3) that principals familiarize themselves with current research on job satisfaction; and (4) that principals become aware of more factors which contribute to job satisfaction such as recognition, achievement, advancement and responsibility, and utilize these factors in their endeavors to improve teachers' job satisfaction.

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LIST OF ABBREVIATIONS

PML - - - - - - - - - - - - - - - - Paced-Monitored Learning

MSQ - - - - - - - - - - - - - - - - Minnesota Satisfaction Questionnaire

TEXP - - - - - - - - - - - - - - - - Teaching Experience

HDE - - - - - - - - - - - - - - - - Highest Degree Earned

PDS - - - - - - - - - - - - - - - - Personal Data Sheet

ITBS - - - - - - - - - - - - - - - - Iowa Test of Basic Skills

PMLQ - - - - - - - - - - - - - - - - Paced-Monitored Learning Questionnaire

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CHAPTER I

INTRODUCTION

The National Commission on Excellence in Education, having been appointed in 1981 by the then Secretary of Education, Terrel H. Bell, was charged to examine the American System of Education and to recommend reforms. As a result of this task, the report entitled, A Nation At Risk: The Imperative for Educational Reform, was completed in 1983. It pointed out that our system of education had reached a state of mediocrity and reforms were desperately needed. Thus, educators and others had to summon all of their educational know-how, professional skills and resources in order to complete improvements for such a monumental challenge.

To add credence to the whole process of improvement in education and hence student achievement, in a meeting with Japanese Prime Minister Nakasone in 1987, President Reagan and Nakasone discussed an agreement which would permit a cooperative undertaking which would allow each country to study all educational aspects of the other country. This readily accepted project was timely in that both countries were engaged in serious efforts to make improvements in their educational system. Both leaders, therefore, felt that this endeavor could prove worthwhile and have positive effects because they could learn something from each other.

According to the present Secretary of Education, William Bennett (1977), scrutiny of education in Japan should give rise to Americans looking at our system of education critically, for there are things to

be learned from this process. The Secretary of Education further gave some implications for American education as he said that "some American education ideals may be better realized in Japan than in the United States." Lessons from the Secretary's perspective which could be given attention include the following:

1. The value of parental involvement from the preschool years on;
2. The necessity of clear purpose, strong motivation, and high standards, and of focusing resources on education priorities;
3. The importance of maximizing learning time and making effective use thereof;
4. The value of competent and committed professional teaching force; and
5. The centrality of holding high expectations for all children and a firm commitment to developing a strong work ethic and good study habits - recognizing that hard work and perseverance are essential elements in a good education.

The proposals in the preceding reports encouraged governors, educators, and legislative officials as well as the media to study, enact laws, and write articles in support of educational improvements. In the State of Georgia, for instance, Governor Joe Frank Harris (1985) proposed and had legislative action enacted on Quality Basic Education

(commonly known as QBE), which is a program for kindergarten through twelfth grades. During this two-year period, administrators and teachers instituted a number of practices, including monitoring, pacing, and tracking of students to meet objectives for QBE.

When teachers in a large metropolitan school system in Georgia found that students were not achieving or accomplishing their goals, the teachers as well as the administrators, after much deliberation, agreed that there was a need to have some means of finding out how well the students were comprehending their assignments and executing the activities. Paced-monitored learning was recommended for this objective.

Paced-monitored learning is a teacher determined method of pacing in which teachers try to take the allotted time with students and allow them time to progress in association with other students in the class. It is a new approach to student learning which can provide almost all students with the successful and rewarding learning experiences now allowed to only a few. It proposes that all or almost all students can master what they are taught. Further, it suggests procedures whereby each student's instruction and learning can be so managed, within the context of ordinary group-based classroom instruction, as to promote his fullest development. This approach enables 75 to 90 percent of the students to achieve the same high level as the other 25 percent learning under typical group-based instructional methods. It also makes student learning more efficient than conventional approaches and students learn more

material in less time. Finally, paced-monitored learning produces markedly greater student interest in and attitudes toward the subject learned than traditional classroom methods.

In opposition to paced-monitored learning, however, members of the Task Force on Education for Economic Growth (1983) asserted that there should be an increase in the length and intensity of student learning time. Levin (1983) suggests that allowing more time is not a better way to increase student achievement, but rather what is actually accomplished with the time that one has more weight in promoting student achievement. Pacing, then, seems to be a means by which teachers can assist and have students use their time wisely and progress to mastery.

According to Thomas R. Gusky and Sally L. Gates (1986), the group-based, teacher-paced approach to instruction permits students to learn as they cooperate with other students in the class. Reiser (1980) and Ross and Rakow (1981) agree with Gusky and Gates in that they state that many students in the lower elementary grades are not self-motivated so that they need the support of classmates in order to enhance their own learning.

In addition to pacing, Coleman (1966) reported that job satisfaction appears to be significantly related to student achievement. He found that satisfied teachers seem to produce higher achievers; moreover, Rubin (1981) found that certain demographic variables of the teachers, such as sex and teaching experience, have an effect on student achievement. Thus, this paper endeavors to

answer the following question: What are the relationships among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables and student achievement?

Statement of the Problem

The purpose of this study was to investigate the relationships which may exist among teachers' perceptions of paced-monitored learning, teacher job satisfaction, selective demographic variables, and student achievement.

The Research Questions

The questions which seemed most adaptive and likely to generate the informational requirements for this study were:

1. What is the relationship between teachers' perceptions of paced-monitored learning and student achievement?
2. What is the relationship between job satisfaction and student achievement?
3. What is the relationship between selective demographic variables such as age, sex, education, and teaching experience and student achievement?
4. What are the relationships among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables, and student achievement?

Significance of the Study

The significance of this study lies in its potential for providing a basis on which public school districts may develop viable and defensible procedures for improving student achievement. Beyond this, the research should provide a source, through the review of the literature, for anyone seeking information on the present state of thought concerning teacher's perceptions of paced-monitored learning, job satisfaction and student achievement.

Background of the Problem

American education is approaching a critical period in its history. Despite great advances in knowledge about student learning and the investment of tremendous amounts of time, effort, and money, our schools still have not moved very far toward the goal of increased learning for all students. Present policies and practices continue to reproduce the same normal achievement distribution in student learning that was produced in a generation before. Thus, the schools continue to provide successful and rewarding learning experiences for only about one-third of our learners.

Recent research clearly suggests that we can no longer afford to allow one, let alone a majority, of our students face ten to twelve long years of unsuccessful and unrewarding school learning experiences. Such experiences limit an individual's chances for economic survival and security in the world of work. The student is unlikely to maintain a job which can ensure him a decent standard of living. Such

experiences also jeopardize the individual's psychological well being. The evidence indicates a strong, perhaps causal, link between a pupil's history of a school learning success or failure and his personality development. A student's inability to meet the school's learning requirements tends to cause the development of a negative self-concept in the academic arena. Further, for about 20 percent of all students, the repeated frustration, humiliation, and despair engendered by their inability to meet these requirements may cause mental health problems.

Limitations of the Study

1. This study was limited to one geographic area in Georgia; therefore, the only generalization possible is to the population of schools from which the sample was drawn.

2. This study was limited to selected elementary schools.

3. The findings of this study were restricted to the variables measured and the sample selected.

4. Analysis of the data was restricted to the stated hypotheses.

Summary

Chapter I gave a picture of this study. Education in America was pointed out as being in a state of mediocrity. In addition, the importance of student achievement to our nation, educators and government officials surfaced. The statement of the problem, the research questions, the significance of the study, the background of the problem, and the limitations of the study were given. Chapter II presents a review of related literature.

CHAPTER II

REVIEW OF RELATED LITERATURE

This review of the literature is divided into two (2) sections, a review of the history of paced-monitored learning and a review of relevant empirical studies. The empirical studies are presented under the following headings:

1. Administrative Monitoring
2. Monitoring and Achievement
3. The Effects of Monitoring on Reading
4. The Effects of Monitoring on Mathematics
5. Monitoring and Physical Education
6. Satisfaction and Student Achievement
7. Mastery Learning and Student Achievement

Overall, the review of the literature suggested the need for an investigation of the effects of an established paced-monitored system of the instructional program on student achievement as perceived by the teachers.

History of Paced-Monitored Learning

Pacing is a teaching belief asserting that under appropriate instructional conditions, virtually all students can learn well most of what they are taught provided conditions are appropriate for their learning.

This philosophy of teaching and learning is closely akin to the mastery learning concept. As early as the 1920's there were at least two major attempts to produce mastery in students' learning. One was

the Winnetka Plan of Carleton Washburne and his associates (1922); the other was an approach developed by Professor Henry C. Morrison (1926) at the University of Chicago's Laboratory School.

These approaches shared major features. First, mastery was defined in terms of particular educational objectives each student was expected to achieve. The objectives were cognitive for Washburne and cognitive, affective, and even psychomotor for Morrison. Second, instruction was organized into well-defined learning units. Each unit consisted of a collection of learning materials systematically arranged to teach the desired unit objectives (Washburne) or objective (Morrison). Third, complete mastery of each unit was required of students before proceeding to the next. This feature was especially important in the Winnetka Plan because the units tended to be sequenced so that the learning of each unit built upon prior learning.

Fourth, an ungraded, diagnostic-progress test was administered at the completion of each unit to provide feedback on the adequacy of the student's learning. This test either indicated unit mastery, and thus reinforced his learning or it highlighted the material he still needed to master. Fifth, on the basis of this diagnostic information, each student's original instruction was supplemented with appropriate learning correctives so that he could complete his unit learning. In the Winnetka Plan, primarily self-instructional practice materials were used, although the teacher occasionally tutored individuals or small groups. In Morrison's approach, a variety of correctives was used; for example, reteaching, tutoring, restructuring the original learning

activities, and redirecting student study habits. Finally, time was used as a variable in individualizing instruction and thereby in fostering student learning mastery. Under Morrison's method each student was allowed the learning time his teacher required to bring all or almost all students to unit mastery.

While Morrison's method was popular into the 1930's, eventually the idea of mastery learning disappeared due primarily to the lack of the technology required to sustain a successful strategy. The idea did not resurface again until the late 1950's and early 1960's as a corollary of programmed instruction. In John B. Carroll's "Model of School Learning" (1963), he discussed his conceptual paradigm which outlined the major factors influencing student success in school learning and indicated how these factors interacted.

In his model, students' aptitude for a particular subject predicted either the level to which he could learn the subject in a given time or the time he would require to learn it at a given level. Hence, rather than defining aptitude as an index of the level to which a student could learn, Carroll defined aptitude as a measure of learning rate, such as a measure of the amount of time the student would require to learn a given level under ideal instructional conditions. A student with high aptitude for a subject would learn it quickly, while one with a low aptitude would learn it more slowly.

Carroll (1975) stated that in the school situation, the time spent and the time needed were influenced not only by learner characteristics but also by the characteristics of the instruction.

The time spent was determined by either the student's perseverance (the amount of time he is willing to spend actively engaged in learning) or his opportunity to learn (the classroom time allotted to learning). If his opportunity to learn were greater than his perseverance, then his perseverance determined the time spent in learning. If his perseverance were greater than his opportunity to learn, then the reverse was true.

The time needed, on the other hand, was determined by the student's aptitude for the subject, the quality of instruction (including the instructional materials) and his ability to understand this instruction. If the quality of instruction were high, then the student would readily understand it and would need little time to learn the subject beyond that required by his aptitude. But if the quality of instruction were low, then the student would need more time.

Current applications of mastery learning are generally based on Bloom's Learning for Mastery Model (1968). But the basic tenets of mastery learning were described in the early years of the twentieth century Washburne (1922) and Morrison (1926) and can be traced to such early educators as Comenius, Pestalozzi, and Herbart (Bloom, 1974).

The increased attention mastery learning has been given in recent years appears to stem from two different sources. First, research studies on the quality of instruction and highly effective schools consistently point to elements of mastery learning as an integral part of successful teaching and learning (Brophy, 1977, 1982; Leinhardt and Pallay, 1982). Second, reports from school systems

throughout the United States and around the world indicate that the use of mastery learning strategies can lead to striking improvements in a wide range of student learning outcomes (Block and Burns, 1976).

With the increased attention to mastery learning has come some confusion, however. The term "mastery learning" is today applied to a broad range of educational programs and curricula, many of which bear little or no resemblance to the ideas described by Bloom and then refined by Block (1971), Block and Anderson (1975), and Guskey (1985). Further, there is frequent confusion between Bloom's Learning for Mastery model and other forms of individualized instruction.

Bloom's approach to mastery does, of course, share a number of common elements with other forms of individualization. For example, it requires that learning objectives be well defined and appropriately sequenced; it emphasizes that student learning be regularly checked and immediate feedback be given; and it stresses that student learning be evaluated in terms of criterion-referenced, rather than norm-referenced standards. There are, however, several major differences, particularly in terms of the basis and pace of instruction prescribed (Block, 1974; Block and Burns, 1976; Stice, 1979; Swanson and Denton, 1977).

The vast majority of individualized instructional programs are individually based and student-paced. Students work at their own pace, independently of their classmates, and move on to new material only after they have demonstrated perfect mastery of each unit. The teacher's role is primarily to give individual assistance when needed rather than to be a principal source of new information. For this

reason, carefully designed, self-instructional materials are essential to such a program (Kulik, Kulik and Cohen, 1979; Thompson, 1980).

The mastery learning model, on the other hand, is typically a group-based, teacher-paced approach to instruction in which students learn, for the most part, in cooperation with their classmates. Mastery learning is designed for use in typical classroom situations where instructional time and curriculum are relatively fixed, and the teacher has charge of 25 or more students. In a mastery learning classroom, the pace of the original instruction is determined primarily by the teacher. Support for this idea comes from studies showing that many students, particularly younger students in the elementary grades and those with lower entry-level skills, lack the sophistication and motivation to be effective self-managers of their own learning (Mabee, Niemann, and Lipton, 1978; Reiser, 1980; Ross and Rakow, 1981). Thus, the role of the teacher is that of an instructional leader and learning facilitator who directs a variety of group-based instructional methods together with accompanying feedback and corrective procedures.

In 1976, Block and Burns reviewed the results of carefully constructed studies on group-based mastery learning programs. They found that while these programs seldom yielded the large effects on student learning that mastery learning advocates proposed were possible, they did lead to consistently positive effects. In quantitative terms, nearly all programs produced greater student learning than non-mastery approaches, and also produced less variability in that learning.

Review of Empirical Studies

The researcher reviewed several relevant empirical studies. The studies are presented in this section.

Administrative Monitoring

Richens (1981) conducted a study to determine whether the thorough and efficient, T and E, monitoring process or monitor had already affected the relationship between the State Department of Education and the local school principals.

Thirty chief school administrators and seventy-one principals responded to a questionnaire to determine their reaction to the T and E monitoring process and the monitors. The SPSS Oneway Analysis of Variance program was used. The multiple comparison tests by Duncan and Scheffe at .05 level of significance were used to determine the difference between the group means through a post hoc procedure.

Richens found that Monmouth County administrators: (1) did not perceive the T and E monitoring process as a help; (2) preferred an evaluation process similar to the Middle States evaluation; (3) did not support the monitoring process; (4) supported the proposition that the monitors should be former experienced administrators; (5) perceived inconsistencies among the assigned monitors; (6) indicated significant difference between the mean scores of the administrators with 11-15 years experience and 16-20 at .05 level in regard to replacing the monitoring process with a system similar to the Middle States; and (7) a significant difference between the mean scores of chief school administrators and principals at .01 level in response to the monitors

being former administrators; (8) There was a significant difference between the mean score of administrators from K-6 organizational patterns and K-8, K-12, 7-12, and 9-12 in regard to the monitors lacking field experience at .05 level of significance; (9) a significant difference between the mean scores of administrators to male and female monitors at .001 was recorded; (10) There was a significant difference between the mean scores of chief school administrators and principals at the .001 level of significance in regard to having the actual working of local boards of education and their decision-making process being part of the monitoring process; (11) a significant difference between the K-6 organizational pattern administrators and 9-12 organizational pattern administrators; (12) There was a significant difference between the mean scores of chief school administrators and principals at .05 level of significance in regard to the monitoring process in general; (13) a significant difference at the .05 level of significance between K-6 organizational pattern of administrators toward the monitoring process and that of K-12 and 9-12 organizational pattern of administrators; (14) In regard to high level state department officials being more involved in the process, a significant difference between the mean scores for the district type group was recorded at .02 level of significance. It was not possible to determine where the differences between the mean scores were located by the post hoc technique employed in this study.

In another study involving administrators and monitoring, Endicott (1984) selected and adapted a model for determining the extent to which

the curriculum offered in Hillsborough County School District, grades 1, 2, and 3, is related to the Florida State Student Assessment Test (FSSAT) of minimum communication standards. A modified version of the Provus' Discrepancy Evaluation Model (DEM) analyzes the relationship between program design and program operation in the field.

The modified version of the DEM was applied to an elementary school's language arts program in grades 1, 2, and 3. The language arts textbook series was analyzed to determine at what reading and language development level and at what grade each communication skill/standard mandated by the State of Florida was taught. Several standards were identified which were not addressed by the textbook series in use. Textbooks, supplementary materials, and additional teaching activities were then compiled, printed, and given to teachers.

Several observations of teachers and surveys of teacher and administrator opinions concluded that the adaptation of the model provided an appropriate systematic procedure for monitoring the teaching of skills related to the FSSAT. Through the use of this adapted model the school administrator had documented proof concerning both the teaching and student achievement of communication skills tested by the FSSAT.

Monitoring and Achievement

Johnson (1979) conducted a secondary analysis study to investigate whether self-paced individualized instruction was superior to traditional classroom instruction practices. In this study, the aggregate chi-square statistical procedure was applied to the reported

results of a preselected set of independent studies. By pooling the statistical results of 24 independent samples taken from 11 dependent research studies, it is shown that traditional classroom practices are superior to self-paced individualized instruction when pupil achievement is used as the criterion. The derived statistic was aggregate X^2 (48) = 101.9880, $p<.002$.

LeMahieu (1983) examined standardized achievement test data to address questions about the effects of a testing/monitoring program on student performance. An extensive program of monitoring student achievement through frequent testing was introduced in the Pittsburgh Public Schools during the 1981-82 school year. The analyses focused on performance on subject matter covered by the monitoring program as compared to that which was not.

The analyses revealed a substantial amount of focusing of the increase in achievement into the areas subsumed by the monitoring program. This is considered both evidence of program impact and an important finding concerning the effects of the testing program. The results of analyses concerning the relationship between the focusing effect and ability were ambiguous and affected by limitations of the criterion instrument.

Denton and Seymour (1977) investigated the influence of unit pacing and mastery learning strategies on the acquisition of higher order intellectual skills at an accredited southwestern university. One hundred twenty-three teaching candidates enrolled in a generic teaching methods course during the 1977 spring term constituted the sample.

The higher order achievement test developed for this investigation employed a four-option, multiple-choice format. The multiple-choice items included single, independent test items as well as interpretive exercises. After a panel review, the final draft of the instrument contained 40 test items. An estimate of reliability, Cronbach's Alpha ($r = .71$), was determined for the final version of the instrument.

The results of this investigation indicate that the remediation strategy which specifies in detail how to correct learner misconceptions is optimal for instructional systems with few time constraints, less specific remediation prescriptions are appropriate for intense, short-term instructional systems.

The Effects of Monitoring on Reading

Austin (1979) designed a study to assess the usefulness of one-minute samples of reading behavior taken from the local newspaper, as the dependent variable in the monitoring of reading growth. In addition, the study investigated the facilitative effect of the sampling method itself on reading performance.

The subjects were forty-eight fourth and fifth graders from a school whose population was representative of a large urban school district. Their reading abilities were representative of the overall fourth and fifth grade population. Subjects were matched by grade, sex, and reading levels yielding a matched-pair with one subject from each pair randomly assigned to an experimental group. All were administered a standardized reading test, pre and post. In addition, pre- and post oral reading rates were taken. Between pre- and post

testing, the experimental group received additional reading rate sessions, the experimental treatment.

During a reading rate session, subjects were asked to select an article from the daily local newspaper, and to read orally for one minute. Then they were asked to evaluate their performance, which was intended to be facilitative, as it provided practice and feedback on the following activities: attention to task, distinctive feature focus, visual memory, auditory memory and match-to-sample. There was a three-way data analysis. Pearson product-moment correlation coefficients were computed to assess the relationship of reading rate scores to a standardized test score.

The results of this investigation provide evidence that oral reading rates taken from the newspaper correlate significantly with standardized test scores. Somewhat weaker evidence was obtained that the method used in sampling reading performance facilitates reading growth.

Palincsar (1982) studies the effects of explicit instruction (modeling and corrective feedback) of four comprehension monitoring activities. These activities were investigated with junior high students decoding at grade level and typically comprehending two years below grade level. The four activities included summarizing, question generating, predicting whatever might be discussed next in the text, and clarifying unclear text. The activities were taught through a procedure referred to as reciprocal teaching.

The research took the form of two studies. Both studies employed a multiple baseline across groups. All students experienced four conditions: baseline, intervention, maintenance, and follow-up. In Study 1, the investigator worked with six students, in pairs, in a setting analogous to a resource room. In Study 2, four remedial reading teachers worked with a total of 21 students on a small group basis in their classrooms.

There were five major findings of the investigation. The first concerned students' ability to answer comprehension questions. Assessed on passages independent of the training materials, students made significant improvement of this measure, typically achieving criterion performance (70% accuracy for four out of five consecutive days) by day 15. The effects were apparent immediately after training as well as eight weeks later. The second finding suggested that there were no differential effects of training observed for the question types employed in the study: text explicit, text implicit, and script implicit. Third, the students' verbal behavior during training indicated that they became more adept with summarizing and question generating as the intervention progressed. Fourth, modest but reliable transfer was suggested on three of four tasks similar but distinct from the training tasks. Finally, gains observed in the experimental setting generalized to the classroom setting for five of the six students in Study 1.

The results of this investigation provide further support to a small body of instructional research in reading comprehension which

encourages that students can indeed, through explicit instruction, be taught to acquire and independently apply reading strategies which will enhance reading comprehension. Babbs (1983) evaluated a program designed to develop fourth graders' knowledge about the reading process and to teach the use of a comprehension monitoring strategy.

Forty-seven subjects of high average to low reading ability participated in fifteen, 22-minute small group sessions conducted by the researcher. The control subjects read in their science and social studies textbooks for the purpose of answering end-of-section questions. The experimental subjects learned to plan a reading task by doing the following: remind themselves that reading is a thinking process, determine a goal, evaluate the difficulty of the text, and determine strategies for reaching the goal and checking on goal attainment. These subjects then learned to use individual sets of comprehension monitoring cards. The cards prompted the students to evaluate their comprehension at the sentence, paragraph, and page levels and to implement remedial strategies when a comprehension failure was noted. During the final two sessions, the use of the cards was phased out.

Oral recalls, reading times, and interview questions were used to evaluate the instruction. When prompted by the cards to use the monitoring strategy, the experimental subjects voluntarily took more time to read/study the recall message (11.5 min. vs. 5.3 min. for controls), recalled a significantly greater number of idea units (12 ideas vs. 5.5 ideas for the controls), and reported the usage of a greater number of reading strategies. The results indicate the use of tangible prompts,

such as the monitoring cards, appears to be an effective way to induce students to be strategic readers.

Harpole (1982) examined the relationship between students' gains on standardized reading tests and the use of the key elements of the Pegasus-Paced Continuous Progress Reading Program. Locally developed by the Tuscaloosa City Schools, Tuscaloosa, Alabama, and nationally validated, this reading management system has been funded for national dissemination by the United States Department of Education's National Diffusion Network. The key elements are (a) informal reading inventory, (b) diagnostic testing, (c) record keeping, (d) subgrouping for instruction, (e) resource file, and (f) staff development. In addition, variables related to leadership, teacher longevity, and socioeconomic status were examined to determine their relationship to students' gains on standardized reading tests.

Thirty-eight Pegasus-paced schools from Alabama, Georgia, Kansas, North Carolina, Ohio and Texas participated in the study. Three hundred and fifty-five teachers completed questionnaires providing requested information. Principals submitted demographic data and number of years the program had been used. Multiple regression analysis was employed to analyze the relationship between student achievement gains on standardized reading tests and the independent variables. No statistical significant relationships were derived.

Waynant (1982) conducted a synthetic study incorporating many of the methodological suggestions discussed in earlier research on metacognition and reading. An error-detection plus interview method were devised.

The methodological objective of this study was to combine two local points of metacognitive research, the interview and the intervention (error-detection) task. A sample group of 120 subjects (good and poor fifth and eighth graders), selected from three suburban parochial schools, was assessed for their knowledge (interview) and their regulation (error-detection task) of their reading processes. The subjects were individually interviewed and randomly assigned to two narrative passages, each embedded with a text comprehensibility error. The subjects were directed to read silently and were then asked to comment on the comprehensibility of the assigned passage at which time they noted or did not note the text inconsistency spontaneously or with attentional assistance probes.

Analysis of variance results showed significant differences between developmental groups and reader-proficiency groups on both the monitoring task and the awareness of understanding interview with good readers and older readers responding significantly better than the poor readers and younger readers. There also was a significant correlation between the scores on the interview and the scores on the monitoring task.

The Effects of Monitoring on Mathematics

Humphrey (1983) investigated how rapidly paced and unpaced basic multiplication problems affected learning pictures, performance levels, and the frequency of fluent responses (responses with a latency below one second). Eight elementary students completed paced and unpaced multiplication drills on a TRS-80, Model III microcomputer. The drills

consisted of 100 single digit multiplication problems. Pacing intervals were based on individual typing speeds measured during number-matching drills. The students responded across three types of pacing conditions: Unpaced (pacing interval of 60 seconds); Paced (pacing interval based on a student's slow responses during the number-match drills, such as 2.5 seconds); and Match-Pace (pacing interval based on average number-matching speeds, such as 1.5 seconds).

The results indicated that paced drills produced higher correct response rates and better learning pictures. The Match-Paced drills with the fastest pacing intervals produced inconsistent results.

Boehmer (1978) designed a study to investigate the effect of a mathematics treatment program entitled, Guideposts Along the Way, on the achievement of Educable Mentally Retarded Children. A monitoring system was devised to assess the degree of teacher compliance with the treatment program.

To assess the effects of the treatment program, two groups (one experimental and one comparison) totaling 92 Educable Mentally Retarded students were pre/post tested with the math section of the Wide Range Achievement Test, and the Criterion-Referenced Placement Test. An analysis of covariance for both Wide Range Achievement (math section) and Criterion-Referenced Math Placement Test scores were conducted. Results showed statistically significant differences on the Criterion-Referenced Test. The direction of the difference was in favor of the experimental group. No significant differences were found for scores on the Wide Range Achievement Test (math section).

Fox (1979) studied the effect of a monitoring system on the achievement of students using a self-paced elementary school mathematics program. The monitoring system consisted of a sequence of diagnostic computer scored and analyzed tests. A year-long study was undertaken with 389 fourth and sixth grade students in four elementary schools. Two of the schools were designated as experimental schools and used the monitoring system while the other two did not.

Altogether, the sample consisted of 389 students. Through a comparison of mean non-verbal IQ scores, the experimental and control groups in each grade were judged similar in ability. These IQ scores were also used to form high and low ability groups in order to investigate treatment-by-ability level interaction. Each of these groups consisted of approximately one-third of the grade level population. The students were also grouped by sex to study treatment effects on boys and girls separately. Finally, the students were grouped by ability and sex to study possible differential effects.

The students in the experimental groups took a monitor approximately every four weeks. A major purpose of this monitoring system was to provide teachers with information that could be used for forming groups, and let the teachers decide how to use the information.

Analysis of Variance (ANOVA) was used to test the treatment effects on the fourth grade groups and sub-groups. There was no evidence that achievement will be significantly affected by a monitoring

system in which the teachers are provided with information that can be used for temporary grouping. Considering the ability level and/or sex of the students separately had no bearing on these results.

Monitoring and Physical Education

Whatley (1980) conducted an investigation to evaluate the effect of daily monitoring and feedback on Academic Learning Time-Physical Education (ALT-PE). ALT-PE is the percent of time that a target student has been academically engaged at an easy level of difficulty. Correlational studies in reading and math have indicated significant positive relationships between ALT and student achievement. The initial descriptive study on ALT-PE indicated a need to increase ALT-PE in public school settings.

Three students were randomly selected from each of four physical education classes. The classes were from three high schools and one middle school in the Columbus, Ohio area. Daily observations were conducted for seven weeks. Observers completed a 12-hour training program. Reliability measured by the scored interval method of calculation remained above 80% throughout the study.

The data were analyzed via a multiple baseline design across subjects. The following conclusions are justified: (1) Graphic feedback to the teachers had no effect on the amount of content time in physical education. (2) Graphic feedback to the teachers had no effect on the amount of engaged time of the students. (3) Graphic feedback to the teachers and students had no effect on ALT-PE or the

amount of motor responding by students. (4) Changes in ALT-PE occurred with changes in activities, i.e., volleyball to dance, rather than with the interventions.

Satisfaction and Student Achievement

Treacy (1982) conducted a study to determine and compare the perceptions of teachers in high, average and low achievers New York City high school English departments concerning student achievement, organizational climate and job satisfaction which existed in that department. Two hundred thirty-eight English teachers from 30 randomly selected public high schools were partitioned into three groups: low, average and high participated. Usable instruments were received from 170 respondents, 71.4% of the sample. Student population included the sampling of the entire student body which participated in the June 1979 New York State Four-Year Comprehensive Regents Examination in English.

The Sergiovanni-Trusty Job Satisfaction Questionnaire (Sergiovanni et al., 1967), the School Climate Profile, Part A (Fox et al., 1973), a Demographic Data Sheet, and the June 1979 New York State Four-Year Comprehensive Regents Examination in English were used to collect the data.

The statistical tests used included: means, standard deviations, one-way analysis of variance, two-way analysis of variance, Scheffe analysis and the Pearson Product-Moment Coefficient of Correlation. The minimal level of significance accepted was the .05 level.

The major findings and conclusions drawn from this study were: (1) The highest actual need subdimensions were found in the average

achieving group of schools. This finding indicated that teacher satisfaction does not depend on the achievement level of the school. (2) All three groups felt that more could be done in each of the five subdimensions of job satisfaction. (3) Average achievers were least satisfied in the subdimensions of Esteem, Autonomy and Self-actualization. Low achievers were most satisfied in the higher order need subdimensions of Esteem, Autonomy and Self-actualization. (4) Achievement was not a major factor on job satisfaction while organizational climate was, both in regard to presently felt satisfaction and in presently felt fulfillment of these needs.

Champaign (1984) utilized a theoretical framework provided by Frederick Herzberg's motivation-hygiene theory to investigate the linkage between 240 elementary and middle school teachers, levels of job satisfaction or dissatisfaction and their motivation to engage in professional activities as well as the linkage between 53 fifth and sixth grade teachers' motivation and their students' math achievement gains.

The study utilized the Job Episodes Questionnaire (JEQ), 60-item questionnaire designed to measure the frequency with which the sample teachers experienced feelings of satisfaction with Herzberg's motivators and dissatisfaction with his hygienes. The Teacher Effort Index (TEI), a self-report questionnaire, was used to measure teacher motivation and a school district quarter test was used to measure about 1300 fifth and sixth grade math students' achievement gains. Statistical treatment of results included Pearson product-moment correlation of teachers' JEQ

scores with student achievement gains. Analysis of Variance (ANOVA), multiple regression analysis, and Kendall's-tau correlations were also used in treatment of the data.

Findings showed support for the two-factor nature of the motivation-hygiene theory with positive relationships shown between teachers' scores on the motivators portion of the JEQ and their motivation to perform as measured by the TEI, but not with the hygienes. Student achievement gains, while high, did not correlate significantly with teacher attitudes or teacher motivation, due, perhaps, to a very directive, learning objectives-oriented type of supervision employed in the sample school district which may have been a more potent motivator than teacher attitudes.

Mastery Learning and Student Achievement

Mevarech (1985) investigated the effects of Student-Team Mastery Learning (STML) model on mathematics achievement of fifth grade students. The experimental study used a 2 x 2 factorial design, where one factor was student-team structure versus individualized structure, and the other was mastery versus non-mastery strategies.

The participants were 134 fifth grade children who studied in four mathematics classes in one Israeli school. Most children come from middle-class families. Approximately 40% of the children were boys. The experiment lasted fifteen weeks.

The 2 x 2 factorial design varying student-team structure and mastery learning strategies were used. These two dichotomous variables construct four treatments: (1) student-teams using mastery learning

strategies (STML); (2) student-teams without mastery learning strategies (STL); (3) mastery learning strategies (MLS); and (4) a conventional setting without mastery strategies. The last treatment served as a control group. Mathematics achievement was assessed by an objective-based test consisting of 35 computational problems and 13 word problems involving fractions. The KR-21 reliability coefficient was .89. In addition, all subjects were pretested by a 20-item mathematics test constructed for the purpose of this study (KR-21 = .93).

The mathematics posttest scores on computation and comprehension were analyzed by means of a 2 x 2 multivariate analysis of covariance as well as univariate analyses of covariance. In these analyses, student-teams and mastery strategies were the factors, and the pretest scores were used as a covariance.

Results showed higher achievement gains for pupils exposed to STML than for those exposed through more traditional instruction. The data further indicated that learning in small groups promoted only computational skills whereas mastery learning strategies improved both computation and comprehension.

Fuchs, Fuchs, and Tindal (1986) compared the effects of mastery learning practices of commercial basal reading series with those of DBI on first grade reading achievement, and they assessed the relative effectiveness of these contrasting mastery learning methods for high- and low-achieving first grade readers.

The subjects were 88 students (45 boys, 43 girls), who constituted the four first grade classes of a small, rural school district in

northeastern Minnesota. The number of children per classroom ranged from 19 to 23. On the auditory Discrimination, Vocabulary, and Comprehension subtests of the Science Research Associates Achievement Test (Naslund, Thorpe and Lefever, 1978), the percentile ranks of subjects' average raw scores were 54.42, 67.36, and 50.65, respectively.

This random sampling results in 49 students in the alternative mastery learning treatment (DBI) and 39 pupils in the typical mastery learning treatment (TYP). Within the DBI group, there were 27 high- and 22 low-achieving students; within the TYP group, there were 21 high- and 18 low-achieving students. Pupils' average scores on the Passage Reading Test pretest were 57.55 (SD = 34.20) and 86.90 (SD = 49.90), for the DBI and TYP treatment groups, respectively. Mean pretest scores of the 40 low- and 48 high-achieving students were 49.61 (SD = 46.67) and 87.46 (SD = 50.46), respectively. A 2 x 2 x 4 (Mastery Learning Treatment x Achievement Level x Teacher) analysis of variance conducted on the pretest scores revealed significant differences between the reading skills of students in the achievement groups, $F(1,70) = 8.42$, $p < .005$, and an F ratio approaching significance for the mastery learning treatment factor, $F(1, 70) = 3.28$, $p = .074$. There was no significant achievement by treatment interaction or teacher effect.

Two types of reading performance measures were used in the study: a curriculum-based basal series mastery test and a curriculum-based passage reading test.

The important characteristics of the TYP treatment included measurement on basal mastery tests every 4 to 6 weeks, verbal feedback to students every 4 to 6 weeks, and promotion before or without corrective feedback. The essential characteristics of DBI included weekly measurement on oral reading passages, weekly graphic feedback, and corrective feedback and testing as required before promotion to more difficult material.

Given initially large raw score differences in the reading skills of the two mastery learning treatment groups, as indicated on the PRT, and PRT and BMT posttest raw scores were analyzed with a 2 x 2 x 4 way analysis of covariance. The experimental factor was the Mastery Learning Treatment (BBI vs. TYP), the blocking factors were Achievement Level (high vs. low), and Teacher (1 vs. 2 vs. 3 vs. 4), and the covariance was the PRT pretest score. Because the teacher factor was not a variable of interest, but rather was employed only to partial out a potential source of variance, results associated with the teacher factor are not presented or discussed below.

The significant treatment by achievement level interactions, replicated across the two measures, indicate that, within regular education classrooms, DBI, resulted in better outcome scores than did the use of more typical mastery learning procedures for low- but not for high-achieving pupils.

Kersh (1970) investigated the effectiveness of a strategy based on John Carroll's "Model of School Learning" to increase the proportion of students attaining mastery (grade A or B) in one year in fifth grade

arithmetic. The strategy attempted to encourage the pupil to maintain mastery throughout his learning.

The activities in this strategy were divided into four phases. In the first phase, the teacher conducted the arithmetic class in his usual style for three to four weeks. When the unit was completed, a diagnostic test based on the objectives of instruction was administered. On the basis of his test errors, the student was directed to alternative learning resources. After a week's opportunity to use these resources, a retest was administered. This retest provided positive reinforcement to students who had used the alternative resources to correct their errors. The sample included students from six fifth grade classes from a socio-economically disadvantaged population and six fifth grade classes from an advantaged population.

The results indicated that on the same achievement test, and using the same mastery standard, there were significant increases in the proportion of experimental students (mastery class) attaining mastery compared to the proportion of the teacher's students from the previous year (control class) attaining mastery. These increases ranged for one advantaged class from 19% mastery in the 1966 control class to 75% mastery in the same teacher's 1967 mastery learning class. Moreover, a disadvantaged class increased from 0% attainment mastery in 1966 to 20% attaining it in the 1967 mastery learning class.

Summary

Chapter II presented a review of the related literature which was discussed under two major topics dealing with the history of paced-monitored learning and various empirical studies on monitoring and achievement, mastery learning and achievement, and job satisfaction and achievement.

Paced-monitored learning, which is similar to the mastery learning concept, has an interesting history. In the early history, there were two major proponents of mastery learning, Carleton Washburne and his associates with the Winnetka Plan and Professor Henry C. Morrison and his plan in Chicago. Many of the major features were similar in both of these. Differences resulted, however, in that the Winnetka approach used self-instructional practice materials and stressed individual learning time, while the Morrison approach centered its instructional measures around a variety of measures including reteaching, tutoring, and restructuring the learning activities.

Recent applications of mastery learning have bases in Bloom's Learning for Mastery Model although the basic tenets of mastery learning were described by Washburne and Morrison. While there were a number of individualized instructional programs, the paced-monitored learning model is essentially a group-based teacher-paced approach to learning.

The review of empirical studies would seem to indicate that some research has been done on monitoring and/or mastery learning and

student achievement; however, the results of these studies are somewhat inconsistent. Some researchers found that monitoring and/or mastery learning correlates significantly with student achievement. Moreover, others found no evidence that achievement is significantly affected by monitoring and/or mastery learning approaches. Similarly, research findings on job satisfaction and student achievement were also inconsistent.

Since the literature revealed that there was no consensus regarding paced-monitored learning, job satisfaction and student achievement, the present study investigated the relative contribution of these variables, as well as demographic variables, to student achievement.

The next chapter, Chapter III, gives the theoretical framework upon which this study was based.

CHAPTER III

THEORETICAL FRAMEWORK

This study was designed to investigate the relationships which may exist among teachers' perceptions of paced-monitored learning, teachers' satisfaction, selective demographic variables and student achievement. The independent variables are teachers' perceptions of paced-monitored learning, job satisfaction and selective demographic variables--sex, age, teaching experience and educational level. The dependent variable is student achievement in mathematics and reading.

The following model illustrates the position of the preceding variables:

Independent Variables	Dependent Variable
Teachers' Perceptions of:	
Paced-monitored Learning	
Job Satisfaction	Student Achievement
Sex	in Mathematics and
Age	Reading
Teaching Experience	
Educational Level	

Definition of Variables

The following definitions are given to help establish the clarity of this study:

Independent Variables

1. Paced-monitored learning is the acquisition of knowledge by means of a highly structured approach to teaching for the purpose of mastering basic skills in reading and mathematics. For this study, it was operationally defined as the score on the Paced-Monitored Questionnaire (PMQ).
2. Job satisfaction was operationally defined as the score on the short form of the Minnesota Satisfaction Questionnaire.
3. Age refers to the chronological age of the teachers.
4. Sex refers to the gender of the teacher, male or female.
5. Experience refers to the number of years working as a professional educator.
6. Educational level refers to the highest degree earned by the teachers.

Dependent Variable

1. Student achievement was operationally defined as the score on the Iowa Test of Basic Skills (ITBS).

Relationships Among the Variables

Marshall (1986), in a study of sophomore nursing students, surveyed student perceptions of mastery learning concepts and strategies included in associate degree nursing curricula in order to provide the impetus for acceptance of innovative teaching strategies. The groups were identified as the same mastery (S-M) group who used some,

but not all, of the components of a master strategy in their traditional curriculum design and the all mastery (A-M) group who used a criterion-referenced mastery curriculum design. These students' perceptions may help educators in the future to determine if a particular teaching-learning strategy increases students' performance by facilitating learning, and in the long run such improvements in learning could lead to reduced attrition in nursing programs in particular and in education in general.

The results of this study fall into two areas. The demographic data indicated that there were significant differences between the age variable and grades received in the first two nursing courses. The younger, S-M group scored according to the bell curve, while the grades of the older, A-M group clustered to the top of the grade scale. Age also contributed to the significant differences at the .01 level between the perception of the two groups and research questions 1, 3, and 4. The results also indicated that significant differences existed at the .01 level between the groups and their perceptions to 11 of the 28 mastered items.

This study determined that the A-M group was generally more positive about their learning experiences than the S-M group. The A-M group earned higher grades; perceived that they had mastered basic concepts and that these basic concepts helped them with subsequent courses. They also felt that grades were the result of understanding concepts and not of memorizing content. Generally, they felt that their instructors were sensitive to their needs and that their learning

was individualized with a variety of teaching strategies offered to complement their individual needs. It appears, therefore, that mastery learning can have an effect on student achievement.

Job satisfaction also affects student achievement. Frank (1982) studied the relationship of several facets of teacher satisfaction and student achievement including students' use of time and teachers' planning time. He found: (1) There was no relationship between student reading achievement and the ten facets of teacher satisfaction investigated in this study. (2) A significant positive correlation existed between teacher satisfaction with community pressures and teacher weeken planned time. (3) Several significant positive correlations were found between the ten teacher satisfaction facets and students' use of time in reading classes, the most important being between satisfaction with teaching and amount of one-to-one instruction, satisfaction with principal and amount of process time, and satisfaction with salary and amount of large group instruction in reading classes.

In another study, Helm (1984) examined the relationship between teacher job satisfaction, motivation level, and student achievement. In his investigation, he looked at the linkage between 240 elementary and middle school teachers' levels of job satisfaction or dissatisfaction and their motivation to engage in professional activities as well as the linkage between 53 fifth and sixth grade teachers' motivation and their students' math achievement gains.

The study utilized the Job Episode Questionnaire (JEQ), a 60-item questionnaire designed to measure the frequency with which the sample teachers experienced feelings of satisfaction with Herzberg's motivators and dissatisfaction with his hygienes. The Teacher Effort Index (TEI), a self-report questionnaire was used to measure teacher motivation and a school district quarter test was used to measure about 1300 fifth and sixth grade math students' achievement gains. Statistical treatment of results included Pearson Product-Moment correlations of teachers' JEQ scores with student achievement gains. Analysis of Variance (ANOVA), multiple regression analysis, and Kendall's tau correlations were also used in treatment of the data.

The findings showed support for the two-factors nature of the motivation-hygiene theory with positive relationships shown between teachers' scores on the motivators position of the JEQ and their motivation to perform as measured by the TEI, but not with the hygienes. Student achievement gains, while high, did not correlate significantly with teacher attitudes or teacher motivation due, perhaps, to a very directive, learning objective--oriental type of supervision employed in the sample school district which may have been a more potent motivator than teacher attitudes. Further study of these questions in different school settings is recommended.

Sex can impact student achievement. Susan A. Basow and M. Susan Distenfeld (1985) conducted a study in which male and female students viewed a videotape of a male or female actor giving a short lecture. At that time, the actor was either using expressive or nonexpressive

communication. In this experiment the expressive teacher received the greatest number of student evaluations totally and on five factor scores as well. The nonexpressive male teacher received very low ratings on two factors, namely "Organization" and "Stimulating Interest." The students of the nonexpressive male teacher had the poorest performance on an achievement test. On the other hand, the students who watched the nonexpressive female teacher had the highest achievement. Difference in attention as a function of the sex role appropriate characteristics was thought to be a mediating factor.

Female teachers have been rated as warmer, more cheerful and more supportive than male teachers (Bennett, 1982; Rubin, 1981). The effects of the qualities of the teacher, then, have an impact on the students' achievement.

Pupil characteristics such as age, sex, grade course mark, ability group; and teacher characteristics: age, certificate, sex, field of teaching, and years of teaching experience can have an impact on pupil performance. Bledsoe et al. (1971) analyzed factors related to pupils' responses to the Pupil Observation Report (POSR) and a similar instrument, a Scale for Measuring Attitude Toward Any Teacher (SMAT), which was one of numerous attitude scales developed by H. H. Remmers and his students (1963).

The students for the study were 4,368 high school pupils and 180 of their teachers. Pupils and teachers from nine, predominantly white, Georgia, secondary schools during the school year 1966-1967 were

involved in the study. The nine schools were selected as representative types of public secondary schools in Georgia.

The POSR and SMAT were administered to classes taught by English, mathematics, science, and social studies teachers. The pupils responded anonymously to the instruments. Teachers were not allowed to be present while the instruments were being administered, so the pupils were under no external pressure to respond in any particular way. Data were obtained from 183 classes taught by 180 different teachers with an average of 23.9 pupils per class.

The Pearson Product-Moment correlations of the SMAT with the POSR factors were used to analyze the results. Among numerous significant differences were the consistent pattern of higher course marks with more favorable pupil perceptions. High ability groups had more favorable perceptions. Science teachers consistently received the lowest ratings, and teachers with the least and the most experience were perceived more favorably except in factors II and III. Teachers above the age of 35 received lower ratings than those below 35. Among significant interactions were pupil sex and pupil age in which, except for 19-year olds, the older groups rated teachers higher. In three of five POSR factors, boys had more favorable opinions of men teachers, whereas girls favored women teachers. Girls favored social studies teachers, whereas boys had more favorable perceptions of science and mathematics teachers. From the preceding study, then, it appears that age, sex, education and teaching experience can impact student achievement.

Hypotheses

The null hypotheses examined in this study were:

H_1: There will be no significant relationship between teachers' perceptions of paced-monitored learning and student achievement.

H_2: There will be no significant relationship between job satisfaction and student achievement.

H_3: There will be no significant relationship between selective demographic variables and student achievement.

H_4: There will be no significant relationships among teachers' perceptions of paced-monitored learning, teacher job satisfaction, selective demographic variables and student achievement.

Summary

Chapter III includes the theoretical framework upon which this study is based. It includes a model showing both the independent and dependent variables. In addition, it contains definitions of the variables and the relationship among them. Finally, in this chapter, the null hypotheses are given. Chapter IV gives the research design and methodology.

CHAPTER IV

METHODS, MATERIALS AND PROCEDURES USED IN THE STUDY

Chapter III is a discussion of the methods, materials and procedures which were utilized in the study. The first section includes a description of the population and sample for the study. The instruments, along with their reliability and validity, are discussed in Section Two, and an explanation of the methods which were used to collect and process the data, the research design, and the statistical processes are discussed in Section Three.

Population and Sample

The population for this study consisted of the elementary school teachers employed in nineteen of the twenty-seven elementary schools in a large metropolitan school district. Lists of the schools, as well as the teachers employed at the schools were obtained from the central office. Twenty percent (20%) of the teachers of each of the nineteen schools (N = 100) were randomly selected by the researcher for participation in this study. In all, 80% of the teachers agreed to participate in the study; therefore, a total of 80 teachers and their students (N = 1,920) were utilized in this study.

Instrumentation

This study utilized the following instruments:

1. Iowa Tests of Basic Skills
2. Minnesota Satisfaction Questionnaire
3. Personal Data Sheet
4. Paced-Monitored Questionnaire

Descriptions of these instruments are provided in the succeeding sections.

Iowa Tests of Basic Skills

The Iowa Tests of Basic Skills were developed by Hieronymus (1976). They measure academic achievement and proficiency in the following areas:

1. Vocabulary
2. Reading
3. Mechanics of Writing
4. Methods of Study
5. Mathematics

The Iowa Tests were designed to serve many purposes. Some of these purposes are listed below:

1. They determine the developmental level of the pupils in order to adapt materials and institutional procedures more precisely to individual needs and abilities.
2. They indicate the extent to which individual pupils have the specific readiness skills and abilities needed

to begin instruction or to proceed to the next step in a planned instruction sequence.

3. They provide a behavioral model to show what is expected of each pupil and to provide feedback which will indicate progress toward suitable individual goals.

The reliabilities of the Iowa Tests vary from test to test and grade to grade. Internal consistency reliability coefficients for the five main area scores range from .84 to .96; composite reliability is .98 for all grades.

In terms of validity, the content specifications are based upon over 40 years of continuous research in curriculum, measurement procedure and interpretation and use of test results. The item selection process showed a combination of empirical and judgmental procedures.

Minnesota Satisfaction Questionnaire

The Minnesota Satisfaction Questionnaire, which is commonly known as MSQ, was developed by Rene Davis in 1964. The short form consists of 20 questions which are designed to measure job satisfaction.

The Hoyt Reliability coefficients were computed to determine the internal consistency. Of the 567 coefficients, 83 percent were .80 or higher and only 2.5 percent were lower than .70. Also, canonical correlation analysis performed on retested data indicated that 89 percent of the coefficients were significant beyond the .001 level.

With regards to validity, the evidence is mostly in the form of construct validity which has resulted from attempts to use the MSQ to

test various predictions from the Theory of Work Adjustment. The authors of MSQ found that individuals who have need levels which are reinforced by their job situations, also have, as predicted, a higher level of satisfaction than a high-need-low reinforcement group. Other evidence of validity is inferred from the ability of the MSQ to discriminate between disabled and non-disabled groups.

Personal Data Sheet

A personal data sheet was prepared for teachers in order to elicit the following demographic information: age of teacher, sex, total years of teaching experience and educational level.

Paced-Monitored Instrument

A paced-monitored instrument was developed by the researcher. It consisted of twelve questions which were designed to assess teachers' perceptions of paced-monitoring as a device for assessing students' progress. Item responses of the questions were weighted for scoring in the following manner: When SA (SA = strongly agree; A = agree; D = disagree; and SD = strongly disagree) was the keyed response to a positive item, the weights were SA = 4, A = 3, D = 2, and SD = 1; however, when SD was the keyed response to a negative item, the weights were reversed as follows: SA = 1, A = 2, D = 3, and SD = 4. Scores for the PML were obtained by summing the weights.

Prior to using the instrument, it was field tested for content validity at two elementary schools using a total of 30 randomly selected elementary teachers. The purpose of field testing was to ascertain from teachers whether the paced-monitored learning instrument

adequately addressed their perceptions of paced-monitored learning. Teachers were asked to respond to the relevancy of each question by using a scale of 1 to 5. They were also asked to add other relevant questions. Randomly selected elementary school teachers were used for this purpose.

Procedure

Once the researcher randomly selected the nineteen schools for participation in this study, copies of the MSQ, personal data sheet and paced-monitored instruments were mailed to the principals of the schools, along with the names of the selected teachers. The principals then administered the questionnaires to the teachers. The ITBS scores for the students were obtained from the Research and Evaluation Department.

Research Design and Method of Analysis

An ex post facto design was utilized in this study because the purpose of the study was to describe and interpret the relationships which already existed among the teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables (age, sex, teaching experience and educational level) and student achievement. Unlike an experimental design in which a researcher manipulates and controls the independent variables and observe the dependent variable for variations related to the manipulation of the independent variables, this study was concerned only with the relationships which existed among the independent and dependent variables.

The ex post facto design was defined by Kerlinger (1973) as follows:

> Ex post facto research is systematic empirical inquiry in which the scientist does not have direct control of the independent variable because manifestations have already occurred or because they are inherently not manipulable. Inference about the relationships among variables is made, without direct intervention, from concomitant variations of independent and dependent variables.

The hypotheses formulated for this ex post facto study are:

1. There will be no significant relationship between teachers' perceptions of paced-monitored learning and student achievement.
2. There will be no significant relationship between job satisfaction and student achievement.
3. There will be no significant relationship between selective demographic variables (age, sex, teaching experience and educational level) and student achievement.
4. There will be no significant relationships among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables and student achievement.

To empirically test these hypotheses, the following statistical techniques were utilized: correlational analysis and regressional analysis.

Correlational analysis, with a confidence level of .05, was utilized to test hypotheses 1-3. Nie (1975) described correlational analysis as follows:

> Correlational analysis provides the researcher with a technique for measuring the linear relationship between two variables and produces a single summary statistic describing the strength of the association; this statistic is known as the correlational coefficient.

In the present study, the Pearson Produce-Moment correlation coefficients were used to determine the degree of relationship between the variables in the aforementioned hypotheses. Correlation coefficients range from +1.0 to -1.0. A coefficient of +1.0 indicates a perfect positive correlation and a coefficient of -1.0 indicates a perfect negative correlation between the variables. A zero, however, indicates the absence of any relationship between the variables.

Hinkle (1982) pointed out that the strength of the correlation coefficient can be easily interpreted by utilizing the succeeding information:

.90 - 1.00 (-.90 to -1.00) - A very high positive (negative) correlation

.70 - .90 (-.70 to - .90) - A high positive (negative) correlation

.50 - .70 (-.50 to -.70) - A moderate positive (negative) correlation

.30 - .50 (-.30 to -.50) - A little positive (negative) correlation

.00 - .30 (-.00 to -.30) - Little, if any, correlation

Regression analysis was utilized to test the fourth hypothesis. Multiple regression analysis can be utilized to determine the combined influence as well as the individual influence of the independent variable on a dependent variable. According to Huck (1974), each independent variable has a beta weight; however, the independent variable with the largest beta weight, disregarding whether the beta weight is positive or negative, is the best predictor variable; conversely, a small beta weight indicates that the corresponding independent variable is not contributing to successful prediction as much as other independent variables.

Summary

Chapter IV presented the methods, materials and procedures in this study. Specifically, it contained the population and sample, the four instruments used for data collection, and a discussion of those instruments. In addition, this chapter contained the research design and the method of analysis as well as the hypotheses tested in this study. The next chapter presents an analysis of the data.

CHAPTER V

ANALYSIS OF DATA

This study was conducted in order to determine whether significant relationships existed among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables of teachers (age, sex, teaching experience and highest degree earned), and student achievement in the areas of mathematics and reading.

This chapter is divided into two major sections. The first section gives pertinent information about the instruments utilized in this study, and the second section presents the results of the statistical analyses which were used to test the hypotheses presented in Chapter III. Section two also contains several tables with data on the variables. The abbreviated variables can be interpreted as follows:

PML - Paced-Monitored Learning

MSQ - Job Satisfaction

TEXP - Teaching Experience

HDE - Highest Degree Earned

Summary of Questionnaires

Personal Data Sheet

The 80 teachers utilized in this study were given a Personal Data Sheet which was designed to elicit information with regard to their age, sex, teaching experience and highest degree earned.

Iowa Tests of Basic Skills

Students' reading and math scores were obtained from the Iowa Tests of Basic Skills. The highest score possible on the test was 65 in math and 65 in reading. Table 1 shows that the average reading score was 49 and the average math score was 56.

Minnesota Satisfaction Questionnaire

Data pertinent to teacher job satisfaction were ascertained with the Minnesota Satisfaction Questionnaire (MSQ). Total scores were calculated for each teacher. The highest score possible on the MSQ was 100. Table 1 shows that the mean score for MSQ was 76.

Paced-Monitored Learning Questionnaire

Teachers' perceptions of paced-monitored learning were obtained from the Paced-Monitored Learning Questionnaire (PMLQ). The highest score possible on the PMLQ was 48. Table 1 shows a mean score of 30 for the PMLQ and a standard deviation of 4.

Statistical Analysis

Pearson Product-Moment correlation coefficient and regression analysis were the two main statistical techniques utilized to analyze the data for this study. Relevant data were analyzed by these statistical techniques in order to determine whether the hypotheses would be accepted or rejected. A brief description of these analytical techniques, and the results of the analyses along with the hypotheses are presented in this section.

Table 1

Means and Standard Deviations

for All Variables

Variable	Mean	Standard Deviation
MSQ	75.6625	11.8684
PML	29.5875	4.4995
READING	48.8400	17.9970
MATH	55.8800	17.7398
AGE	4.6375	1.7081
SEX	1.9500	.2710
TEXP	3.5250	1.7282
HDEG	1.6250	.6820

Number of cases = 80

Correlation Analysis

Pearson Product-Moment correlation coefficients were used to analyze hypotheses 1, 2, and 3. According to Ary (1972), the Pearson r is the most commonly used correlation index. As stated in Chapter IV, correlation coefficients range from +1.0 to -1.0; these coefficients represent a perfect positive correlation and a perfect negative correlation, respectively. A zero indicates the absence of any relationship.

The results of the correlations for the present study, along with the hypotheses are presented below.

1. Results with respect to Hypothesis 1:

   There will be no significant relationship between teachers' perceptions of paced-monitored learning (PML) and student achievement in reading and mathematics.

The correlation matrix found in Table 2 provides a graphic of the relationships discovered. As can be observed, a correlation coefficient of .031 was obtained for teachers' perceptions of paced-monitored learning and student achievement in reading, and a correlation coefficient of -.072 was obtained for teachers' perceptions of paced-monitored learning and student achievement in math.

The critical value for the Pearson r at the .05 level was .217. Since neither one of the aforementioned coefficients exceeded the critical value, no relationship was found to exist between teachers' perceptions of PML and student achievement; therefore, the first hypothesis was accepted.

Table 2

Correlation Matrix of All Variables

Level of significance .05 .01
Critical value .217 DF = 78
#Significant correlations for this study

*Significant level .01
**Significant level .001

Pearson Correlation Coefficients

	MSQ	PML	READING	MATH	AGE	SEX	TEXP	HDEG
MSQ	1.0000	.2695#	.2401#	.3035#	.0432	-.0880	-.0233	-.0612
PML	.2695	1.0000	.0313	-.0728	.0379	-.0275	-.0206	-.0180
READING	.2401	.0313	1.0000	.4637	.0931	-.0501	.0512	.1526
MATH	.3035*	-.0728	.4637	1.0000	.1438	-.0449	.1234	.0729
AGE	.0432	.0379	.0931	.1438	1.0000	-.0944	.8114	.2078
SEX	-.0880	-.0275	-.0501	-.0449	-.0944	1.0000	.1108	.0342
TEXP	-.0233	-.0206	.0512	.1234	.8114	.1108	1.0000	.3302
HDEG	-.0612	-.0180	.1526	.0729	.2078	.0342	.3302	1.0000

2. Results with respect to Hypothesis 2:

   There will be no significant relationship between job satisfaction and student achievement in reading and mathematics.

Table 2 shows that a correlation of .24 (significant at the .05 level) was found to exist between teacher job satisfaction and student achievement in reading, and a correlation of .30 (significant at the .05 level) was found to exist between teacher job satisfaction and student achievement in math; consequently, the second hypothesis was rejected.

3. Results with respect to Hypothesis 3:

   There will be no significant relationship between selective demographic variables and student achievement in reading and math.

As can be seen in Table 2, the correlation coefficient for age and reading was .09; -.05 for sex and reading; .05 for teaching experience and reading; and .15 for highest degree earned and reading. The coefficient for age and math was .14; -.04 for sex and math; .12 for teaching experience and math; and .07 for highest degree earned and math. Since none of these coefficients exceeded the critical value of .21, no relationship was found to exist between the selective demographic variables and student achievement; therefore, the third hypothesis was accepted.

The correlation analyses utilized in the preceding section tested the relationship between one independent and one dependent variable

for various hypotheses and produced a single coefficient which described the strength of the relationship. Hypotheses 1 and 3 were accepted, and hypothesis 2 was rejected.

The next section will briefly discuss multiple regression, which was utilized to test the fourth hypothesis. This section also contains the results of the regression analysis, and the fourth hypothesis is restated.

Multiple Regression

Since the correlational analysis utilized in hypotheses 1-3 did not infer causality, multiple regression analysis was also utilized to test hypothesis 4, which stated that there will be no significant relationships among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables and student achievement. Richmond (1964) provided the following information about multiple regression.

> Multiple regression analysis makes it possible for us to use more than one independent variable at the time. It often is the case that, when two or more independent variables are considered jointly, the estimating procedure is far more accurate than when only one independent variable is used. The coefficient of multiple correlation and the related coefficient of multiple determination measure the closeness of the relationship between the dependent variable and the joint simultaneous configuration of the independent variables.

4. Results with respect to Hypothesis 4:

   There will be no significant relationship among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables and student achievement in reading and math.

Multiple regression analysis was utilized to analyze hypothesis 4 in order to determine the amount of variation in student achievement that can be explained by teacher job satisfaction, paced-monitored learning and selective demographic variables. The regression analysis was also utilized to determine the relative contributions of these variables to student achievement, as well as their combined influence on student achievement.

Hypothesis 4 was rejected because teacher job satisfaction (MSQ) was found to be a significant predictor of student achievement in math and reading. Using math as the dependent variable, Table 3 shows that an F ratio of 7.409, significant at and beyond the $p<.008$ was obtained, indicating that job satisfaction is a significant predictor of student achievement in math. The adjusted R on the regression table is .080 which means that job satisfaction accounts for eight percent of the variation in student achievement in mathematics. This finding also means that other variables not analyzed in this study account for 92 percent of the variance in student achievement in math. Table 3 also shows that job satisfaction has a beta weight of .30, which means that when there is a unit change in job satisfaction, there is a corresponding .30 standard deviation of change in student achievement in math.

Table 3

Multiple Regression of Dependent Variable Math (Student Achievement)

With Teacher Job Satisfaction and Other Variables

Multiple R = .30355 Adjusted R Square = .07970
R Square = .09214 Standard Error = 17.01819

Variables in the Equation

Variable	B	SE B	95% Confdnce	Intrvl B	Beta	SE Beta
MSQ	.455406	.167311	.121957	.788856	.303546	.111519
(Constant)	21.384480	12.824661	-4.175030	46.943991		

	Correl	Part Cor	Partial	Tolerance	T	Sig T
	.303546	.303546	.303546	1.000000	2.722	.0081
					1.667	.0997

(table continues)

Variables Not in the Equation

Variable	Beta In	Partial	Tolerance	Min Toler	T	Sig T
PML	-.160627	-.163007	.934962	.934962	-1.402	.1652
AGE	.131606	.138008	.998335	.998335	1.182	.2410
SEX	-.017727	-.018530	.991906	.991906	- .157	.8755
TEXP	.137072	.143720	.998055	.998055	1.232	.2218
HDEG	.083109	.087176	.998882	.998882	.743	.4602

STEP	MULTR	RSQ	ADJRSQ	F(EQN)	SIGF	RSQCH	FCH	SIGCH		VAR.	BETAIN	CORREL
1	.3035	.0921	.0797	7.409	.008	.0921	7.409	.008	IN:	MSQ	.3035	.3035

Using reading as a dependent variable, Table 4 shows that an F ratio of 4.47, significant at and beyond the $p < .038$ was obtained, indicating that job satisfaction is also a significant predictor of student achievement in reading. The adjusted R on the table is .044 which means that job satisfaction accounts for four percent of the variation in student achievement in reading. This finding also means that other variables not analyzed in this study account for 96 percent of the variance in student achievement in reading. The beta weight for job satisfaction as shown in Table 4 is .24. This means that when there is a unit of change in job satisfaction, there is a corresponding .24 standard deviation of change in student achievement in reading.

Based on the aforementioned findings, then, hypothesis 4 was rejected because individually job satisfaction did have a significant impact on student achievement in reading and math. Hypothesis 4 was also rejected because the R square on the regression tables (see Tables 3 and 4) showed that collectively the independent variables (teachers' perceptions of PML, job satisfaction, and demographic variables) had a combined influence of .092 on math, which means that their combined influence accounts for .9 percent of the variance in student achievement. Likewise, the combined influence of the independent variables on reading achievement as indicated by R square was .57. This is a very powerful influence, indicating that these variables together predict over fifty percent of the variation in student achievement.

Table 4

Multiple Regression of Dependent Variable Reading (Student Achievement)

With Teacher Job Satisfaction

Multiple R = .2401 Adjusted R Square = .0447
R Square = .0576 Standard Error = 17.589

Variables in the Equation

Variable	B	SE B	95% Confdnce Intrvl B		Beta	SE Beta
MSQ	.365445	.172930	.710095	.710095	.240102	.113617
(Constant)	21.158775	13.255438	-5.259273	47.576824		

Correl	Part Cor	Partial	Tolerance	T	Sig T
.240102	.240102	.240102	1.000000	2.113	.0380
				1.596	.1148

(table continues)

Variables Not in the Equation

Variable	Beta In	Partial	Tolerance	Min Toler	T	Sig T
PML	-.031964	-.031839	.934962	.934962	-.270	.7877
AGE	.083423	.085865	.998335	.998335	.731	.4670
SEX	-.028682	-.029427	.991906	.991906	-.250	.8035
TEXP	.061877	.063680	.998055	.998055	.541	.5899
HDEG	.160842	.165596	.998882	.998882	1.425	.1585

STEP	MULTR	RSQ	ADJRSQ	F(EQN)	SIGF	RSQCH	FCH	SIGCH		VAR.	BETAIN	CORREL
1	.2401	.0576	.0447	4.466	.038	.0576	4.466	.048	IN:	MSQ	.2401	.2401

Summary

The purpose of this chapter was to present the statistical analysis of the data with respect to paced-monitored learning, job satisfaction, selective demographic variables and student achievement in math and reading. Correlational analysis and regression analysis were the statistical techniques utilized to test the data.

Of the four hypotheses formulated for this study, two (hypotheses 2 and 4) were rejected and two (hypotheses 1 and 3) were accepted. The level of confidence upon which acceptance or rejection of the null hypotheses was based was set at .05.

In Chapter VI, the results are summarized and discussed. Conclusions and recommendations for further research are also presented.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chapter VI of this study is divided into three sections. A summary of the purpose of the study along with the methodology and statistical procedures in the study was presented in the first section. A summary of the findings and the conclusions is presented in the second section, and recommendations for further study are presented in the third section.

Summary of the Study

This study was conducted in order to determine if significant relationships existed among teachers' perceptions of paced-monitored learning, job satisfaction, age, sex, teaching experience, and the highest degree earned (independent variables) and student achievement (dependent variable). These variables can be shown schematically as follows:

Independent Variables	Dependent Variable
Teachers' Perceptions of:	
Paced-Monitored Learning	
Job Satisfaction	
Age	Student Achievement in Mathematics and Reading
Sex	
Teaching Experience	
Educational Level	

In order to fulfill the major purpose of this study, four hypotheses were formulated. The hypotheses are restated in the summary of the findings presented in this chapter. The hypotheses were formulated to answer the following research questions:

1. What is the relationship between teachers' perceptions of paced-monitored learning and student achievement?
2. What is the relationship between job satisfaction and student achievement?
3. What is the relationship between selective demographic variables (age, sex, teaching experience, and the highest degree earned) and student achievement?
4. What are the relationships among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables, and student achievement?

The population for this study consisted of the school teachers employed in nineteen of the twenty-seven elementary schools in a large metropolitan school district. Nineteen of the schools and 20 percent of the teachers (N = 100) employed at each of the nineteen schools were randomly selected for participation in the study. In all, 80 percent of the teachers agreed to participate in the study; therefore, a total of 80 teachers and their students (N = 1,920) were utilized in the study.

Four instruments were used to collect data for this study: The Paced-Monitored Learning Questionnaire, Minnesota Satisfaction Questionnaire, Iowa Tests of Basic Skills, and a Personal Data Sheet.

During October, 1987, these instruments were taken by the researcher to the principals of each of the selected schools for distribution to the selected teachers.

The data from these questionnaires were analyzed with the following statistical processes: correlational analysis was used to analyze hypothese 1-3, and regression analysis was used to analyze the fourth hypothesis.

Findings and Conclusions of the Study

The findings for this study are summarized in this section along with pertinent conclusions. The results are presented with respect to each hypothesis.

1. Results with respect to Hypothesis 1:

   There will be no significant relationship between teachers' perceptions of paced-monitored learning and student achievement.

The first hypothesis was accepted because it was found that no relationship existed between teachers' perceptions of paced-monitored learning and student achievement in reading and mathematics. A correlation coefficient of .031 and -.072 was obtained for paced-monitored learning and student achievement in reading and mathematics, respectively. These findings support other findings with respect to paced-monitored learning and student achievement.

Johnson (1979), for instance, investigated whether self-paced individual instruction was superior to traditional classroom instructional practices. He found that traditional classroom practices

were superior to self-paced individual instruction when pupil achievement is used as the criterion. Humphrey (1983) also found that paced-monitored learning may not be superior to traditional learning in terms of student achievement.

In the present study, it is highly probable that no relationship was found to exist between teachers' perceptions of paced-monitored learning and student achievement because paced-monitored learning is a fairly new approach in the surveyed school system; therefore, it is probably too early for significant gains to be realized. Since, however, the approach emphasizes individualized pacing, it would seem that it should result in mastery learning and/or higher student achievement. Perhaps, then, given a greater period of time and using a larger and more diverse population, results would show greater increases in student achievement. Since, however, no significant relationship was found to exist between paced-monitored learning and student achievement, it was concluded that teachers' perceptions of paced-monitored learning was not a predictor of student achievement.

2. Results and conclusions with respect to Hypothesis 2: There will be not significant relationship between job satisfaction and student achievement.

Null hypothesis 2 was rejected. It was found that a significant relationship existed between job satisfaction and student achievement in reading and mathematics. A correlation coefficient of .24 and .30 were obtained between job satisfaction and student achievement in reading and mathematics, respectively. This finding was contrary to

the findings of previous studies with respect to job satisfaction and student achievement.

In a study by Champaign (1984), a theoretical framework based on Frederick Herzberg's Motivation-Hygiene Theory (1959) was used to determine whether there was a linkage between teachers' job satisfactions and dissatisfactions and their motivations to engage in professional activities as well as their students' mathematics gains. Findings showed high achievement gains but those gains did not correlate with teachers' job satisfactions or teachers' motivations. According to Champaign, it is possible that he did not find a significant relationship between teachers' job satisfaction and student achievement because of the learning objectives-oriented type of supervision which superseded the influence of job satisfaction and motivations for increased student achievement.

Even though the findings of the present study are contrary to the aforementioned findings, it is the contention of the researcher that a significant relationship was found to exist between job satisfaction and student achievement because satisfied teachers, according to Anderson (1953), are motivated to become effective teachers. Satisfied and/or effective teachers have a need for recognition (Maslow, 1954; Herzberg, 1959) which is realized through the achievement of their students. Thus, as teachers' need for recognition is realized through their students' achievement, teachers, according to Washington and Watson (1969), "strive even more for fulfillment of higher goals and their efforts and attitudes overflow to the student

body, resulting in more productive students." Since a significant relationship was found to exist between job satisfaction and student achievement, then, it was concluded in this study that job satisfaction impacts significantly on the achievement of students.

3. Results and conclusions with respect to Hypothesis 3: There will be no significant relationship between selective demographic variables and student achievement.

The third hypothesis was accepted because no significant relationship was found to exist between demographic variables and student achievement in mathematics and reading. The correlation coefficients between age and reading, between sex and reading, between teaching experience and reading, and between highest degree earned and reading were .09, -.05, .05, and .15, respectively. Also, the coefficients between age and mathematics, between sex and mathematics, between teaching experience and mathematics, and between highest degree earned and mathematics were .14, -.04, .12, and .07, respectively.

The findings for this study contrary to other findings. Rubin (1981), for example, found that sex and teaching experience have an effect on student achievement. Possibly no relationship was found to exist between demographic variables and student achievement in the present study because the majority of teachers selected were predominately of the same sex and have similar teaching experience and educational backgrounds. Perhaps, a larger number of teachers with varying backgrounds would have given different results with

respect to demographic variables and student achievement. However, since the present study found that no relationship existed between the demographic variables and student achievement, it was concluded that demographic data do not impact significantly on student achievement.

4. Results with respect to Hypothesis 4:

   There will be no significant relationships among teachers' perceptions of paced-monitored learning, job satisfaction, selective demographic variables and student achievement in reading and mathematics.

Hypothesis 4 was rejected because a significant relationship was found to exist between job satisfaction and student achievement in mathematics ($p < .05$) and job satisfaction and reading ($p < .05$); however, teachers' perceptions of paced-monitored learning and the selective demographic variables were not found to be significantly related to student achievement. It was interesting to note, however, that the R square on the regression tables (see Tables 3 and 4) show that these variables have some impact on student achievement. This seems logical because the correlation matrix shows that PML is significantly related to job satisfaction, and job satisfaction, in return, as shown in the correlation matrix as well as the regression tables, is significantly related to student achievement. It would seem to appear, then, that PML should also have a significant impact on student achievement. It is probable that a significant impact was not found to exist between PML and student achievement in

the present study because the sample was perhaps too small and it lacked diversity in terms of the demographic variables studied.

Summary of Findings

1. Correlational analysis revealed that there was no significant relationship between teachers' perceptions of paced-monitored learning and student achievement.
2. Correlational analysis revealed that there was a significant relationship between job satisfaction and student achievement.
3. Correlational analysis revealed that there was no significant relationship between the selective demographic variables (age, sex, teaching experience, and highest degree earned) and student achievement.
4. Regression analysis also revealed that a significant relationship existed between job satisfaction and student achievement; however, teachers' perceptions of paced-monitored learning and the demographic variables were not significant predictors of student achievement.

Recommendations

1. Since only one of the independent variables, job satisfaction, utilized in the study, was found to be significantly related to student achievement, it is recommended that attempts be made to identify

other variables which may be better predictors of student achievement, such as school climate, leadership style of principal, and school discipline, to name a few.

2. It is recommended that additional studies utilizing larger samples in more diverse areas be conducted to replicate this study. Teachers and students from all levels should be used to expand the scope of this study.
3. Since job satisfaction was found to be a significant predictor of student achievement, it is recommended that principals familiarize themselves with current research on job satisfaction and utilize the research in their endeavors to improve teachers' levels of job satisfaction.
4. Since job satisfaction is important to student achievement, it is recommended that principals become aware of more factors which contribute to job satisfaction such as recognition, achievement, advancement and responsibility, and utilize these factors in their endeavors to improve teachers' job satisfaction.

APPENDICES

APPENDIX A

CORRESPONDENCE

ATLANTA PUBLIC SCHOOLS

MRS. BARBARA D. CULP
Principal

THOMAS JEFFERSON GUICE ELEMENTARY SCHOOL
1485 WOODLAND AVENUE, S.E.
ATLANTA, GEORGIA 30316
TELEPHONE 627-7328

April 27, 1987

Dr. Alvin Dawson
978 North Avenue, N.E.
Atlanta, Georgia 30307

Dear Dr. Dawson:

I am requesting your approval to complete a study which I am currently undertaking. This study concerns the effects of an established paced-monitoring system of the instructional program on student achievement and teacher job satisfaction as perceived by teachers.

I would like your permission to survey teachers in 12 elementary and the three (3) middle schools in Area II using an instrument that will take less than fifteen (15) minutes to complete. The results of this study will be made available to you upon its completion.

Your consideration of this request is greatly appreciated.

Sincerely,

Barbara D. Culp

Barbara D. Culp

BDC/dvs

MAY 0 6 1987

ATLANTA PUBLIC SCHOOLS

OFFICE OF AREA II
TELEPHONE: 873-5252

978 NORTH AVENUE, N. E.

ATLANTA, GEORGIA 30306

The Relationships

78

DR. A. A. DAWSON
AREA SUPERINTENDENT

MRS. JOAN ZION
ASST. AREA SUPERINTENDENT

May 4, 1987

Mrs. Barbara D. Culp
Guice Elementary School

Dear Mrs. Culp:

In reference to your letter requesting approval for you to complete your study doing research in Area II, I would approve your doing the research, however, approval must come from Dr. Taylor of Research and Evaluation.

Please forward your request to do research in Area II to Dr. Taylor's office. You might mention I have verbally given approval.

If I can be of additional assistance, please do not hesitate to call me.

Sincerely ~~yours~~,

A. A. Dawson

A. A. Dawson
Superintendent
Area II

AAD/jam

MRS. BARBARA D. CULP
Principal

ATLANTA PUBLIC SCHOOLS

THOMAS JEFFERSON GUICE ELEMENTARY SCHOOL
1485 WOODLAND AVENUE, S.E.
ATLANTA, GEORGIA 30316
TELEPHONE 627-7328
627-7329

May 14, 1987

Vocational Psychology Research
Industrial Relations Center
Elliott Hall
University of Minnesota
Minneapolis, Minnesota 55455

Attention: Mr. Allen Due

Dear Mr. Due:

I am conducting a study on the relationship between paced-monitored learning, teacher job satisfaction, and student achievement. In order to complete this study, I need to purchase 200 copies of the Minnesota Satisfaction Questionnaire (Short form).

Since I am operating within a very tight time frame, it is imperative that I receive the questionnaires as soon as possible; but not later than Saturday, May 16, 1987.

Please send by a courier service to the name and address listed below:

Mrs. Barbara D. Culp
Guice Elementary School
1485 Woodland Avenue, S.E.
Atlanta, Georgia 30316
(404) 627-7328

I thank you in advance for your permission to use the form and for the speedy service of your response.

Respectfully yours,

Barbara D. Culp

Barbara D. Culp

BDC/dvs

P.S. Mary Sexton is aware of this request and the money is already there.

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Psychology
Elliott Hall
75 East River Road
Minneapolis, Minnesota 55455

Mrs. Barbara D. Culp
c/o Guice Elementary School
1485 Woodland Avenue SE
Atlanta, GA 30316

Dear Mrs. Culp:

We are pleased to grant you permission to use the Minnesota Satisfaction Questionnaire (Short Form, 1977) in your research. Please find 200 copies enclosed.

Also, please find enclosed a qualifications and registration form. Please fill in, sign and return as we need more information regarding your qualifications.

Good luck with your research. If you have any questions, or if we can be of any additional assistance, please do not hesitate to contact us.

Sincerely,

Allan M. Due /sb

Allan M. Due
Assistant Director
Vocational Psychology Research

Atlanta University
223 James P. Brawley Dr., S.W.
Atlanta, Georgia 30314-4391
(404) 681-0251

May 21, 1987

SCHOOL OF EDUCATION

Mrs. Grace Bickers
Office of Enrollment Management
Atlanta University
Atlanta, Georgia 30314

Dear Mrs. Bickers:

I am pleased to inform you that Mrs. Barbara Culp has successfully presented and defended her dissertation proposal to the faculty of the Department of Educational Leadership. Accordingly, Mrs. Culp is now an official candidate for the degree Doctor of Education.

Thank you.

Sincerely,

Olivia M. Boggs

Olivia M. Boggs
Associate Professor

OMB

cc: Dr. Alfred E. McWilliams
Mrs. Barabara Culp

MRS. BARBARA D. CULP
Principal

ATLANTA PUBLIC SCHOOLS

THOMAS JEFFERSON GUICE ELEMENTARY SCHOOL
1485 WOODLAND AVENUE, S.E.
ATLANTA, GEORGIA 30316
TELEPHONE 627-7328
627-7329

July 20, 1987

Atlantic Public Schools
Research and Evaluation Department
Attn: Mrs. LaMarion Hayes-Wallace
210 Pryor Street, S.W.
Atlanta, Georgia 30335

Dear Mrs. Hayes-Wallace:

I am requesting your approval and assistance in the completion of a study which I am currently undertaking. This study concerns the relationship among paced-monitored learning, job satisfaction, selective demographic variables of teachers, and student achievement.

I would like permission to survey, through random selection, twenty percent of the teachers in thirteen elementary schools in Area II. Verbal approval for this study has already been given by Dr. Dawson. The instruments are a paced-monitored questionnaire with a section for personal data, and a job satisfaction questionnaire. The instruments will take less than ten (10) minutes to complete. I will also need to see copies of the class summary sheets of the IOWA and pacing results for these teachers' students.

Enclosed you will find four (4) copies of the proposal and the instruments to be used.

Your prompt consideration of this request is greatly appreciated in order that my study can be completed by October 16, 1987.

Sincerely,

Barbara D. Culp

THOMAS JEFFERSON GUICE ELEMENTARY SCHOOL
1485 Woodland Avenue, S. E.
Atlanta, Georgia 30316

October 19, 1987

Dear Principal:

May I request your assistance in completing a study that I am currently undertaking for a doctoral degree at Atlanta University in Educational Administration and Supervision? This study concerns the relationship among paced-monitored learning, job satisfaction, selective demographic variables of teachers, and student achievement.

Twenty percent of your teachers were randomly selected to participate. The instruments, a paced-monitored questionnaire with a personal data section and a job satisfaction questionnaire, will take less than ten minutes to complete.

Please allow the selected teachers to complete these questionnaires and return them to you. If you wish, a copy of the results of this study will be made available to you upon its completion.

Please collect and return all completed instruments to T. J. Guice Elementary School, c/o Barbara D. Culp, by October 27, 1987. Your prompt consideration of this request is greatly appreciated.

Sincerely,

Barbara D. Culp

Barbara D. Culp

THOMAS JEFFERSON GUICE ELEMENTARY SCHOOL
1485 Woodland Avenue, S. E.
Atlanta, Georgia 30316

October 20, 1987

Dear Teacher:

As educators, we are interested in our students and are aiding them in achieving to their greatest potential. In light of that, I am soliciting your assistance in completing a study concerning the relationship among paced-monitored learning, job satisfaction, selective demographic variables of teachers, and student achievement.

Please complete the enclosed instruments by October 26, 1987, and return them to your principal. Your principal will send them to me via school mail.

Allow me to express my sincere appreciation and thanks for your participation. Your prompt attention, interest, and time will help me to make this study valid.

Sincerely,

Barbara D. Culp

Barbara D. Culp

ATLANTA PUBLIC SCHOOLS

Department of Research and Evaluation
210 Pryor Street, S.W.
Atlanta, Georgia 30335

Office of
Assistant Superintendent for
Curriculum and Research Services

November 2, 1987

Mrs. Barbara Culp, Principal
Guice Elementary School
1485 Woodland Avenue, S.E.
Atlanta, Georgia 30316

Dear Mrs. Culp:

Your request to conduct research within the Atlanta Public Schools has been reviewed. The study which you propose, "The Relationship Among Paced-Monitored Learning, Teacher Job Satisfaction, Selective Demographics and Student Achievement," has been approved.

As you know, the confidentiality of students' test scores must be maintained. If the Department of Research and Evaluation can facilitate your efforts in obtaining student test data, please let us know. However, we would need students' names and ID's to retrieve data from the master file.

This letter serves as official authorization to conduct the study requested. As a standard procedure, we ask that you send us a copy of the final report when your project is completed.

Good luck in your research endeavors.

Sincerely,

L. Hayes-Wallace

LaMarian Hayes-Wallace
Research Associate

LHWap

APPENDIX B

INSTRUMENTS

minnesota satisfaction questionnaire

(short-form)

SAMPLE

Vocational Psychology Research

UNIVERSITY OF MINNESOTA

*Ask yourself: How **satisfied** am I with this aspect of my job?*

***Very Sat.** means I am very satisfied with this aspect of my job.*

***Sat.** means I am satisfied with this aspect of my job.*

***N** means I can't decide whether I am satisfied or not with this aspect of my job.*

***Dissat.** means I am dissatisfied with this aspect of my job.*

***Very Dissat.** means I am very dissatisfied with this aspect of my job.*

On my present job, this is how I feel about . . .	Very Dissat.	Dissat.	N	Sat.	Very Sat.
1. Being able to keep busy all the time	☐	☐	☐	☐	☐
2. The chance to work alone on the job	☐	☐	☐	☐	☐
3. The chance to do different things from time to time	☐	☐	☐	☐	☐
4. The chance to be "somebody" in the community	☐	☐	☐	☐	☐
5. The way my boss handles his/her workers	☐	☐	☐	☐	☐
6. The competence of my supervisor in making decisions	☐	☐	☐	☐	☐
7. Being able to do things that don't go against my conscience	☐	☐	☐	☐	☐
8. The way my job provides for steady employment	☐	☐	☐	☐	☐
9. The chance to do things for other people	☐	☐	☐	☐	☐
10. The chance to tell people what to do	☐	☐	☐	☐	☐
11. The chance to do something that makes use of my abilities	☐	☐	☐	☐	☐
12. The way company policies are put into practice	☐	☐	☐	☐	☐
13. My pay and the amount of work I do	☐	☐	☐	☐	☐
14. The chances for advancement on this job	☐	☐	☐	☐	☐
15. The freedom to use my own judgment	☐	☐	☐	☐	☐
16. The chance to try my own methods of doing the job	☐	☐	☐	☐	☐
17. The working conditions	☐	☐	☐	☐	☐
18. The way my co-workers get along with each other	☐	☐	☐	☐	☐
19. The praise I get for doing a good job	☐	☐	☐	☐	☐
20. The feeling of accomplishment I get from the job	☐	☐	☐	☐	☐
	Very Dissat.	Dissat.	N	Sat.	Very Sat.

PACED-MONITORED LEARNING QUESTIONNAIRE

DIRECTIONS: Please respond to the following questions as follows:

SA - Strongly Agree; A - Agree; D - Disagree; SD - Strongly Disagree by placing a circle around your response.

1.	Student achievement is higher under paced-monitored learning.	SA	A	D	SD
2.	I am pleased with paced-monitored learning.	SA	A	D	SD
3.	Teachers should have a freer hand in paced-monitored learning.	SA	A	D	SD
4.	The passing score of eighty (80) percent is appropriate.	SA	A	D	SD
5.	Paced-monitored learning presents extra and/or more work for teachers.	SA	A	D	SD
6.	The intent of PML is a good idea.	SA	A	D	SD
7.	There is a need to improve PML.	SA	A	D	SD
8.	I feel pressured under the PML approach.	SA	A	D	SD
9.	PML calls for more intensive planning.	SA	A	D	SD
10.	The planning and implementation of the plans justify the results.	SA	A	D	SD
11.	PML helps to maximize learning time.	SA	A	D	SD
12.	PML should be used with all students.	SA	A	D	SD

PERSONAL DATA SHEET

DIRECTIONS: Please check one of the following:

1. AGE RANGE

____ a. Below 25

____ b. 26 - 30

____ c. 31 - 35

____ d. 36 - 40

____ e. 41 - 45

____ f. 46 - 50

____ g. 51 and over

2. SEX

____ a. Male

____ b. Female

3. TEACHING EXPERIENCE

____ a. 1 - 5 years

____ b. 6 - 10 years

____ c. 11 - 15 years

____ d. 16 - 20 years

____ e. 21 - 25 years

____ f. 26 - 30 years

____ g. 31 or more years

4. HIGHEST DEGREE EARNED

____ a. B.S. or B.A.

____ b. M.S. or M.A.

____ c. Ed.S.

____ d. Ed.D. or Ph.D.

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ATLANTA UNIVERSITY
SCHOOL OF EDUCATION
DEPARTMENT OF ADMINISTRATION AND POLICY STUDIES

APPROVAL OF DISSERTATION

Full name of student: BARABARA D. CULP

Advisor: Dr. T. Turner

To the Committee on Graduate Study:

The attached dissertation: The Relationships among Teachers' Perceptions of Pace-Monitored Learning, Teacher Job Satisfaction, Selected Demographic Variables, and Student Achievement

has been approved by the School of Education in partial fulfillment of the requirements for the Doctor of Education degree and is recommended for acceptance.

(Signature) T. Turner

T. B. Hogan

W. H. [illegible]

Dean:

Date:

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